

NOTES ON SOUTH AUSTRALIAN MARINE MOLLUSCA,
WITH DESCRIPTIONS OF NEW SPECIES.—PART XI.

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PLATES XXII., XXIII., AND PART XXVI.

My paper deals with the genus *Triphora*. I have adopted this name, in accordance with the conclusion arrived at by Mr. Hedley as to Blainville's priority of publication.

Hitherto only four species have been recorded for South Australia, which furnished the type specimens of them all—*viz.*, *T. angasi*, *T. festiva*, *T. pfeifferi*, all of Crosse and Fischer, and *T. scitula*, A. Adams. Several others were known to occur here, but their identification was difficult. Mr. Hedley, in a valuable contribution to the Proc. Linn. Soc. of New South Wales, 1903 (1902), on the Triphoridae of that State, cleared away much of the obscurity which had enveloped some already described species from Port Jackson, and added several new ones to the list. Specimens of nearly all these, kindly supplied by him, have aided considerably in unravelling the tangle of our South Australian forms. Six of his eight novelties are represented here, and four of the six species described by other authors. The task has been difficult, even with this clearance. A very large number of shells, collected during several years' dredging, furnished not only many species, but a most perplexing number and series of variants in nearly every species: and what with macromorphs and micromorphs, juveniles and adults, narrow and obese forms, differences in relative size of pearl rows, validity and invalidity of the sutural thread, rolled, bleached, or fresh shells, typical and atypical colouration, accurate specific determination at times seemed unattainable. Even now it is impossible absolutely to decide whether some of my enumerated varieties are not distinct species, and some of my newly-named species may not prove eventually to be only variants. Of the four species enumerated in Adcock's "Handlist of Aquatic Mollusca of South Australia," 1893, one has been omitted, *viz.*, *T. scitululus*, A. Adams. It was described from a Port Lincoln shell, but has not been recognized. A shell which in some respects conforms to the description has been dredged, but I refrain at present from so naming it. To the remaining three species we have been

able to add nine more from other authors, and ten new forms now described, bringing the total to 22 species, with 4 varieties. Two dextral shells are very interesting, as are also three subulate species, all from comparatively deep water.

Triphora dexia, n. sp. Pl. xxii., figs. 6 to 10.

Shell dextral, elongate conical in the earlier half, cylindrical in the later; of 15 whorls, including the protoconch. This has two and a half turns, its whorls short and swollen convex, with axial costæ, valid; 12 in the first whorl, 17 in the second; the apex is a tiny smooth hemisphere lying horizontally. Spire-whorls not convex, suture distinct, impressed. The body-whorl has three openings—one a bent tube formed by the closure of the anterior canal; the second a bent tube formed by the closure of the posterior canal, and projecting just below the suture; the third by the aperture which is complete, round, much produced into a wide tube, somewhat effuse at its opening, and with a slightly irregular border.

Sculpture.—In the upper whorls is a central prominent round rather rugged spiral rib, a second smaller spiral lies immediately below the suture, and a third is just visible immediately above the suture. As the shell grows the lowest rib gradually enlarges until in the last whorl it equals the central rib. This rib, at first central, gradually moves lower and approximates the third rib. Axial ribs, 16 in the penultimate, one-fourth the thickness of their interspaces and somewhat obliquely antecurrent, extend between the sutures, validly tuberculating the central spiral and but slightly the sutural ones. A scar runs from a slight notch near the centre of the ventral border of the apertural opening to the extremity of the anterior tube, and another from near the centre of the dorsal border of the aperture to the end of the posterior tube, indicating the lines along which union between the two sides of the aperture has been effected. The base is flatly concave with the anterior tube projecting in its centre, is radially engraved with curved lines, and is surrounded by a nodular pad formed by the exaggerated lowest spiral, which with its fellow then runs between the two closed canals, and fades out on the dorsum of the apertural tube. The upper spiral vanishes at the base of the posterior tube.

Dim.—Length, 7.5 mm., including the anterior tube of 0.7 mm.; width, 1.6 mm., excluding the apertural tube of 0.6 mm. Diameter of apertural tube, 1.1 mm., including its reflected expansion.

Variations.—The adult mouth may form in a shell with

only 11 whorls and 4.3 mm. long, or in 1 with 17 whorls and 7.9 mm. long.

Locality.—Type from 55 fathoms off Cape Borda, with 56 others in good condition and about 90 poor; also in 62 fathoms, 2 poor; also off Beachport in 40 fathoms, 2 good; in 110 fathoms, 4 good and 5 moderate; in 300 fathoms, 3 poor; off Cape Jaffa in 130 fathoms, 2 moderate; in 300 fathoms, 1 poor. Its habitat would therefore appear to be in 50 fathoms, extending up to 40 and down to 110.

Obs.—Although this shell is dextral it has been placed in the genus *Triphora*, because it has the three apertures in its body-whorl. But for this it would have been called a *Cerithiopsis*, and if immature it would have been placed in this genus. In the Bull. Mus. Compar. Zool. of Harvard Coll., vol. xviii., "Blake" Dredging, xxix., Report on the Mollusca, 1889, part 2, p. 242, W. H. Dall writes:—"There are probably," in *Triforis*, "some dextral forms, though such are apt to be referred to *Cerithiopsis*." This suggestion is the justification for calling my new species a *Triphora*. Subsequent examination of the animal may settle its final generic location.

***Triphora epallaxa*, n. sp.** Pl. xxii., fig. 1.

Shell dextral, elongate-conical in the earlier half, cylindrical in the later. Protoconch absent. Suture indistinct, minutely appressed. Whorls 18, flat, with two spiral rows of tubercles, axially alternating, much larger in the lower row; with a faint spiral cord joining the tubercles. The last whorl has its aperture round, projecting as a free tube, with a thin expanded border, also two other tubes—one standing out from the centre of the base, the other immediately below the suture of the penultimate whorl. The base is flatly convex and is slightly margined by the lower row of tubercles, which then passes between the two tubes and fades out on the dorsum of the projecting trumpet-shaped apertural tube. The upper row of tubercles ends at the base of posterior tube.

Dim.—Length, 7.9 mm.; width, 1.7 mm.; including the projecting aperture, 2 mm.

Locality.—130 fathoms off Cape Jaffa, 2 dead.

Diagnosis.—It resembles *T. dexia* in being dextral, in its general shape, and in having three well-formed tubes, but is plainly distinguished by the two rows of alternating tubercles.

***Triphora subula*, n. sp.** Pl. xxiii., figs. 5 and 6.

Shell sinistral, elongate-subulate-pyramidal. Protoconch of $3\frac{1}{2}$ turns; the first has two high, narrow, smooth, rounded

keels joining at the apex to form a tongue; the second whorl shows the beginning of a third keel, infrasutural, and distinctly smaller; the interspaces are concave and microscopically axially striate. Spire-whorls 20, with three spiral ribs; one immediately beneath the suture is the narrowest, flat on its posterior surface and nearer the middle one than is the lowest; about one-half the width of the interspaces; nodular, especially the central rib; nodules transversely elongate, fully twice as long as broad, joined in the interspaces by oblique, low, very broad, rounded axial costæ, much wider than their interspaces; faint microscopic accremental striæ. The last 6 whorls have a supra-sutural smooth thin ledge. Aperture broken. Colour uniformly light-horn tint; the posterior spiral distinctly darker.

Dim.—Length, 12 mm. (probably 14 when perfect); breadth, 1·6 mm.

Locality.—Type Gulf St. Vincent, depth unrecorded, with 2 other examples; in 55 fathoms off Cape Borda, 1 dead.

One of the co-types shows two smooth spirals on the base, a nearly oblong mouth, and an anterior canal, curved to the left, reflected and notched.

Triphora spina, n. sp. Pl. xxii., figs. 2, 3, and 4.

Shell sinistral, elongate-subulate-pyramidal. Protoconch of 4 turns, apex prominent and tongue-like, whorls smooth, centrally boldly angled, concave between the median angulations. Suture linear. Spire-whorls 17, with four ribs; the largest is the continuation of the nuclear angulation; above this is a much smaller infra-sutural rib, below it the shell wall seems thinner and less opaque; then comes a bold rib, and close below it a supra-sutural rib. They are slightly tuberculate with low transverse nodules, united by low broad oblique axial costæ, most marked between the upper two ribs, but connecting the upper three; the supra-marginal rib is smooth, and wedged in between the two adjacent ribs. Aperture roundly rhomboidal; outer lip crenulated by the spirals, antecurrent into a spur towards the front; canal nearly closed at this point, curved to the left, and reflected; back of the aperture pinched at the suture, but no sutural notch. Base smooth, with one spiral. Colour, light-amber tint.

Dim.—Length, 12·4 mm.; width, 1·9 mm.

Locality.—Type, 110 fathoms off Beachport, with 2 others perfect and 11 broken, in 150 fathoms 6 moderate, and in 200 fathoms 3 poor; in 90 fathoms off Cape Jaffa, 7 perfect and 14 broken, and in 130 fathoms 3 broken.

It differs from *T. subula* in its unicarinate protoconch, and in having the 4 ribs throughout.

Triphora spica, n. sp. Pl. xxiii., fig. 1.

Shell solid, long, narrow, upper third elongate-conical, the rest nearly cylindrical. Protoconch of 5 whorls, convex, with two central closely approximate spiral threads and numerous axial bars. Spire-whorls 17, the first three with two nodulate spiral ribs, and an infra-sutural small, smooth cord. In the fourth whorl this becomes nodulate; and getting thicker equals the other spirals in the sixth whorl. Between the twelfth and thirteenth whorls a supra-sutural thin threadlet appears and gradually enlarges and grows sub-nodular. The nodules in a spiral row on the penultimate are 17, transversely elliptical, and are joined spirally by a bar about one-third of their width, and vertically by obsolete bars nearly their own width. The body-whorl has three spiral ribs, a subnodulated peripheral riblet, a distinct smooth, stout, basal spiral, and an obsolete one at the base of the canal. The lip is broken. Colour, light-brown, with axial streaks of darker-brown from suture to suture: sometimes these happen to be continuous over two or more whorls, sometimes not; the protoconch is of darker brown.

Dim.—Length, 9·7 mm.; breadth, 1·55 mm.; length of protoconch, ·55 mm.

Locality.—Type, 40 fathoms off Beachport, with 4 others; 55 fathoms off Cape Borda, 10 good, many poor; 62 fathoms off Cape Borda, 1 poor; Gulf St. Vincent, under 25 fathoms, 7 poor. The habitat would appear to be in 40 to 50 fathoms.

Diagnosis.—From *T. kesteveni*, Hedley, it differs in its nodulated spirals and in its colour.

Triphora angasi, Crosse and Fischer.

Triphoris angasi, Crosse and Fischer, Jour. de Conch., 1865, p. 46, pl. i., figs. 12 and 13. *Type locality*—Gulf St. Vincent, South Australia. Hutton, 1880, Manual New Zealand Moll., 1880, p. 75, Stewart Island, 30 fathoms.

Triphoris, Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., p. 388. Tasmania (Miss Lodder); Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1902, vol. xiv. (N.S.), part 2, p. 86, Victorian coast.

Triphora, Hedley, Proc. Linn. Soc., New South Wales, 1902, vol. xxviii., p. 610, Sydney Harbour.

Taken on the beach at Yankalilla, Gulf St. Vincent, Scales Bay, and St. Francis Island in the Great Australian

Eight. Dredged in 6 fathoms, and in 15 fathoms off St. Francis Island in poor condition; in 20 fathoms, Gulf St. Vincent and Investigator Strait, few, mostly dead: in 25 fathoms, Spencer Gulf, 1 moderate: in 40 fathoms off Beachport, 7 perfect and 19 good: in 55 fathoms, Cape Borda, 7 moderate: in 62 fathoms off Cape Borda, 1 poor: in 110 fathoms off Beachport, 2 good, but somewhat decolourized. It is not a common shell in our waters or on our beaches. Angus, in Proc. Zool. Soc., Lond., 1865, p. 172, gave its station as "deep water," Gulf St. Vincent. This would mean something less than 25 fathoms. It is found perfect as deep as 40 fathoms and moderately good up to 55 fathoms, but beyond that poor.

Hedley says, *loc. cit.*:—"No specimens examined afforded an opportunity for describing the protoconch." I may add, therefore, that it is elongate and pointed of $4\frac{1}{2}$ whorls, which are convex, and have near their middle two carinæ, very close together, the lower of which enlarges and forms the lower of the two pearl rows in the first spire-whorl: the upper carina rather later deflects rather abruptly upwards and forms the upper row. The protoconch is axially closely lirate. The shell when adult may vary from 8.1 mm. to 4.1, and may when of equal length vary distinctly in obesity, and also in the roundness of the lower part of the body-whorl.

Trifora angasi, Crosse and Fischer, *var. leuca*, n. var.

This shell is usually longer and narrower than the average typical shell, is less rounded in the body-whorl, and has the sutural furrow rather more distinct, but in all these respects both the type and the variety vary. It is not a dead and bleached shell, but is taken quite white in a perfectly fresh condition. But some few specimens are uniformly very faintly brown, some have only the base slightly brown, some are just tinted brown over a greater or smaller vertical extent of the spire, or over the centre of the whorl for one or two turns, proving it probably only a variety.

It is taken perfect on the beach at St. Francis Island and Scales Bay on the West Coast: in 6, 15 to 20, and 35 fathoms off St. Francis Island, 14 fathoms off Ardrossan, 20 fathoms Investigator Strait, 45 fathoms off the Neptunes, 55 fathoms off Cape Borda, 40 and 110 fathoms off Cape Borda: while in poor condition it is found in 130 fathoms off Cape Jaffa, and in 150 fathoms off Beachport. My dredgings have yielded more good specimens of this variety, and to a greater depth, than of the typical *M. angasi*, Crs. and Fischer.

Triphora innotabilis, Hedley.

Triphora innotabilis, Hedley, Proc. Linn. Soc., New South Wales, 1903 (1902), part 4, p. 608, pl. xxxii., figs. 23, 24, 25. *Type locality*—Sydney Harbour.

Dredged in Gulf St. Vincent, (?) depth, 10 good, 4 moderate; in 22 fathoms, Investigator Strait, 2 perfect and fresh; in 62 fathoms off Cape Borda, 1 perfect. Taken in shell sand, Edithburgh and at Streaky Bay, good. Identified by Mr. Hedley from his type.

Triphora latilirata, n. sp. Pl. xxvi., fig. 1.

Shell sinistral, solid, elongate-conic. Protoconch of 5 whorls, smooth and round. Spire-whorls 13, flat, sloping; suture rather wider than the spaces between the spiral ribs. Spirals 3, flat, wide, nearly smooth on the surface; interstices narrow, punctated by close-set axial incisions, which also cut the sides of the lira. Body-whorl rhomboidal, with three spiral ribs, towards the aperture the interspaces are occupied each by a short, rapidly-widening spiral; the axial incisions are more distinct towards the aperture. Base convex with a peripheral spiral, rounded, smooth keel, and a second more anterior, punctated between. Aperture roundly quadrate; outer lip sloping, straight, ascending at the suture and pinched into a tiny sinus, anteriorly circular and effuse; in profile straight, minutely retrocurrent at the suture, obliquely very slightly antecurrent anteriorly. Canal well marked, nearly closed, especially at the junction with the aperture, markedly recurved. Inner lip distinct, slightly erect. Colour, white.

Dim.—Length, 10.5 mm.; breadth, 2.5 mm.

Locality.—Type, Gulf St. Vincent, (?) depth, with 23 others moderate: in 15 to 20 fathoms off St. Francis Island, 1 moderate; in 24 fathoms off Newland Head, 1 moderate; in 55 fathoms off Cape Borda, 1 good.

Variations.—In the shell from 55 fathoms, in the antepenultimate whorl an interstitial thread arises between the middle and anterior spirals, and becomes a definite though small lira. In some large shells a thin sutural lamina is seen between the later whorls. A large broken specimen would measure 15 mm. if complete. In one individual the posterior spiral lira throughout the shell is tinged brown.

Triphora armillata, n. sp. Pl. xxii., fig. 5.

Shell solid, elongate-conic. Protoconch of 4 whorls, convex, centrally carinate, the fourth with two approximate carinae; crowded fine axial bars, concave forward above the

carinæ, straight below. Spire-whorls twelve, sloping, the first four with two spiral rows of pearls; in the fifth a lira appears between them, and becomes gradually as large as the others; the tubercles are large, about twenty in a row in the penultimate, joined by short bars transversely, and by narrower axial bars directed obliquely forwards towards the lower suture. Sutural spaces distinct, as wide as a pearl row; in the eighth a supra-sutural thread arises, which grows distinct and slightly tuberculate. Base flatly convex, with the sutural lira, and two basal liræ; the first with valid transversely oval tubercles, joined by very broad axial bands to much lower tubercles in the second, and by vanishing bands to the nearly smooth third lira. Aperture round, pinched at the suture into a sinus, and with a short well recurved canal in front; outer lip thin, simple, slightly reflected at its margin, retrocurrent at the suture, crossing the columella in front and flattened out over the base of the canal, so as to close it here. The outer lip has eight nodulous spirals on its outer surface, *viz.*, three as on the spire, the peripheral and one basal, and three others intercalated on the body-whorl. Colour, protoconch light-brown, shell white, but for the fifth and sixth whorls which are dark-brown, so as to form a sort of bracelet, whence the name.

Dim.—Length, 7·9 mm.; breadth, 2·2 mm.

Locality.—Type, Gulf St. Vincent, dredged in 20 fathoms, with many other good ones; also in 6 and in 15 to 20 fathoms off St. Francis Island, 9 good in each; in 22 fathoms, Investigator Strait, 2 good and 4 poor; in 22 fathoms, outside Backstairs Passage, 3 poor; in 40 fathoms off Beachport, 2 moderate, 3 poor; in 55 fathoms off Cape Borda, 4 poor. Also taken on the beach in Gulf St. Vincent, Venus and Scales Bay, West Coast, and many and good on St. Francis Island. It is a shallow-water species, ranging up to about 40 fathoms.

***Triphora cinerea*, Hedley.**

Triphora cinerea, Hedley, Proc. Linn. Soc., New South Wales 1903 (1902), part 4, p. 612, pl. xxxiii., figs. 36 and 37. *Type locality*—Middle Harbour, Port Jackson. Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1906 (1905), vol. xviii. (N.S.), part 2, p. 61, Victoria.

Dredged in 14 fathoms off Ardrossan, 3 moderate; in Gulf St. Vincent, below 25 fathoms, 12 fresh, 32 moderate, 18 poor; in 40 fathoms off Beachport, 9 perfect, 22 moderate; in 55 fathoms off Cape Borda, 9 good, 7 poor; in 62 fathoms, 1 moderate; in 90 fathoms off Cape Jaffa, 16 moderate, immature, and 9 poor, broken; in 110 fathoms off Beachport, 3 moderate, broken; in 130 fathoms off Cape Jaffa, 1

poor, broken; in 300 fathoms, 5 fragments; and in 300 fathoms off Beachport, 1 poor. Taken on the beach at St. Francis Island, 5 moderate.

Obs.—This species flourishes in the medium depths, being not littoral, up to 50 fathoms, and then gets rare and poor. One taken in Gulf St. Vincent is quite white, as is one from Cowes, Victoria.

***Triphora regina*, Hedley.**

Triphora regina, Hedley, Proc. Linn. Soc., New South Wales, 1903 (1902), part 4, p. 608, pl. xxxii., fig. 21. *Type locality*—Balmoral Beach, Port Jackson.

Hedley's unique type was "mutilated at each extremity," so I complete the description from a perfect specimen. It has a brown, elongate five-whorled protoconch, whorls convex, faintly unicarinate in their anterior third and axially finely lirate. The aperture is circular, with a rather deep, narrow posterior sinus. The inner lip is erect and solid, meeting the edge of the basal lip, which does not cross it. Canal nearly closed, reflected, notched. It appears to be a good species.

Dredged in Gulf St. Vincent, (?) depth, 1 poor: in 35 fathoms off St. Francis Island, 4 poor: in 40 fathoms off Beachport, 1 perfect, 3 good: in 45 fathoms east of North Neptunes, 1 poor: in 55 fathoms off Cape Borda, 2 moderate; in 62 fathoms north-west of Cape Borda, 1 poor: in 90 fathoms off Cape Jaffa, 1 perfect; in 110 fathoms off Beachport, 1 good; in 130 fathoms off Cape Jaffa, 4 moderate; in 150 fathoms off Beachport, 4 moderate. Taken on the beach at St. Francis Island, 6 moderate. This seems to be a deep-water form.

***Triphora albovittata*, Hedley.**

Triphora albovittata, Hedley, Proc. Linn. Soc., New South Wales, 1902, part 4, p. 609, pl. xxxii., figs. 26, 27. *Type locality*—Balmoral Beach, Port Jackson.

Dredged Gulf St. Vincent, depth unrecorded, 1 perfect; in 35 fathoms, St. Francis Island, 1 poor; in 40 fathoms off Beachport, 1 good; in 55 fathoms off Cape Borda, 1 very good; in 90 fathoms off Cape Jaffa, 2 good. Taken at St. Francis Island on the beach, 3 perfect, 2 good.

Var. mamillata, var. nov.

Instead of having the elongate four-whorled protoconch of the type, it has a mamillate two-whorled apex. The first whorl is round and smooth, the second has a central carina

and subdistant axial bars. Generally the second is swollen and lies somewhat out of the axis of the shell, causing the mamillate form. Rarely the first whorl may be as large as the second. This protoconch seems complete, and not the base of a spiculate protoconch, whose terminal whorls have fallen. The shell varies in shape, being short, broad, and pupæform, or long, narrow, and elongate-pyramidal.

Dredged in Gulf St. Vincent, 7 perfect and 7 poor: in 90 fathoms off Cape Jaffa, 2 good; in 150 fathoms off Beachport, 2 poor. Taken on the beach MacDonnell Bay, 1; Gulf St. Vincent, 23, in varying condition: Venus Bay, 2, good.

The very different protoconch makes me diffident about calling this a variety, inasmuch as the characters of the protoconch are generally regarded as very certain specific diagnostics: but the shells are otherwise indistinguishable.

***Triphora granifera*, Brazier.**

Triforis graniferus, Brazier, Proc. Linn. Soc., New South Wales, 1894, vol. ix., 2nd ser., p. 173, pl. xiv., fig. 10, Port Jackson.

Triphora granifera, Brazier, Hedley, *op. cit.*, 1903 (1902), p. 610, pl. xxxii., figs. 28 and 29; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1906 (1905), vol. xviii. (N.S.), p. 60, Western Port.

Taken on the beach from MacDonnell Bay to Scales Bay, and St. Francis Island. Dredged in 6, 14, 20, 22 fathoms in Gulf St. Vincent and off St. Francis Island, alive; in 35 fathoms off St. Francis Island, 3 poor: in 40 fathoms off Beachport, 4 good, 11 poor: in 62 fathoms off Cape Borda, 3 poor: in 110 fathoms off Beachport, 2 moderate; in 130 fathoms off Cape Jaffa, 1 moderate: in 300 fathoms off Beachport, 1 good and 1 moderate. This appears to be a littoral form, extending up to 22 fathoms: beyond that depth the shells are mostly dead and decolourized.

The length of the type is 4 mm., but it may be 5.7 mm. or 2.9 mm. Sometimes the shell has the lowest pearl row the largest, and the highest the smallest, so that the whorls are imbricating or pagoda-like. Sometimes the supra-sutural threadlet stands out as a distinct low, small pearl row. One adult micromorph has the lowest pearl row relatively very large, so as to suggest *T. pfeifferi*, Crosse, but the short, thick figure is that of *granifera*. The South Australian shells are very rarely wholly dark- or light-brown like the Sydney specimens, but are a glistening, translucent white, with brown, squarish blotches. These may be quite dark or very pale, large or small, few or many, so as to make the shell nearly white or nearly brown.

Triphora pfeifferi, Crosse and Fischer.

Triphoris pfeifferi, Crosse and Fischer, Jour. de Conch., 1865, p. 47, pl. i., figs. 14 and 15. *Type locality*—Gulf St. Vincent.

Triforis pfeifferi, Crosse and Fischer, Tryon. Man. of Conch., vol. ix., 1887, p. 182, pl. xxxviii., fig. 9; Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., p. 388, Tasmania; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, vol. xiv. (N.S.), 1902, p. 86, Victoria.

Taken on the beach as far west as Venus and Scales Bays, and on St. Francis Island. Dredged at 6, 15, 20, 22 fathoms, alive, in Gulf St. Vincent, etc.: in 40 fathoms off Beachport, very many good; in 55 and 62 fathoms off Cape Borda, 2 perfect, 2 fresh, 5 good: in 90 fathoms off Cape Jaffa, 1 perfect, 3 poor: in 110 fathoms off Beachport, 8, all broken; in 130 fathoms off Cape Jaffa, 2 good: in 150 fathoms off Beachport, 4 poor. It is very abundant on the beach and is manifestly a littoral shell, and certainly lives up to 22 fathoms, and may live up to 90 or 100.

The authors say "the first three whorls are smooth." The protoconch is of four convex whorls, with a central carina and crowded axial liræ, and a well-marked suture. The length of an adult shell with ascending suture and completely formed mouth may be 9.5 mm. or 3.7 mm.

It varies very greatly. When the supra-sutural ledge is wide, but not projecting, the middle row of pearls is larger than usual, and the upper row smaller than usual, an imbricating or pagoda-like shape is assumed. When the supra-sutural ledge is well marked and nodulated, so as to look like a pearl row, and the highest pearl row is small, and the middle row is scarcely seen, and the lowest is very large, this may appear to be a large central row between two smaller rows, and may, as Hedley suggests (Proc. Linn. Soc., New South Wales, 1903 (1902), p. 616), be *T. scitulus*, A. Adams, which we have not been able to identify among South Australian shells. Sometimes the shell is typically nacreous-white, with the violet-brown base, and the supra-sutural ledge articulated brown and white; but it may be almost throughout of a dark-violet-brown or any intermediate tint.

The mouth in Crosse's type appears not to have been complete. The outer lip ascends beyond the supra-sutural ledge so as to touch the lowest pearl row. Here it is pinched so as to form a gutter, and retires to form a notch. It is antecurrent towards the base and somewhat effuse, and crosses the base of the canal as a spur, so as to meet an erect rather thick inner lip.

Triphora festiva, A. Adams.

Triphoris festivus, A. Adams, Proc. Zool. Soc., London, 1851, p. 278. *Type locality*—Port Lincoln (Mus. Cuming). Angas, Proc. Zool. Soc., London, 1865, p. 172.

Triphoris festiva, A. Adams, Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., part 3, p. 387, Tasmania.

Dredged in 40 fathoms off Beachport, 1 good, albino; in 6 fathoms off St. Francis Island, 3 poor. This is a littoral form. Taken on the beach Yankalilla, Gulf St. Vincent, Spencer Gulf, many good: and at Scales and Smoky Bays, and St. Francis Island in the Australian Bight, a few good.

The type was probably an immature shell, which would have a flat base: when mature the species has a rounded base with two simple spirals, besides the supra-sutural peripheral band. It has a four-whorled, brown, acutely-conical protoconch, the first turn of which is smooth, the others unicarinate with axial bars. The shell when apex and base are perfect may be 3.5 mm. long and 1.3 mm. broad, or 6.4 mm. long and 2.1 mm. broad. In the larger forms a threadlet arises in the later whorls between the two spiral pearl rows and becomes a third smaller row.

Triphora ampulla, Hedley.

Triphora ampulla, Hedley, Proc. Linn. Soc., New South Wales, 1903 (1902), p. 615, pl. xxxii., figs. 38 and 39. *Type locality*—Watson's Bay, Port Jackson. Gatliff and Gabriel, Proc. Roy. Soc., Victoria, 1908, vol. xxi. (N.S.), part 1, p. 378, Port Phillip.

Dredged in Gulf St. Vincent, 11 poor: 14 fathoms, Ardrossan, 1 good: 55 fathoms, Cape Borda, 3 poor: 90 fathoms, Cape Jaffa, 2 perfect: 110 fathoms, Beachport, 2 poor. Taken on St. Francis Island beach, 2 poor.

This seems to be a deeper-water form than *T. festiva*. The protoconch may be brown instead of white as in the type.

Triphora maculosa, Hedley.

Triphora maculosa, Hedley, Proc. Linn. Soc., New South Wales, 1903 (1902), part 4, p. 614, pl. xxxii., figs. 32 and 33. *Type locality*—Middle Harbour, Port Jackson. Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1906 (1905), vol. xviii. (N.S.), p. 61, Victoria.

Dredged in 9 fathoms off Edithburgh, 3 good; in Gulf St. Vincent, depth unrecorded, 14 good: in 55 fathoms off Cape Borda, 1 poor: in 110 fathoms off Beachport, 1 poor. Taken on St. Francis Island beach, 22 good.

Mr. Hedley gives the length of his type as 6.7 mm., but some of my specimens reach 9.2 mm.

Triphora cana, n. sp. Pl. xxiii, figs. 2, 3, and 4.

Shell sinistral, solid, of 12 whorls, elongate-conical. Protoconch slightly mamillate, of two whorls; the second the larger, convex, with sigmoid axial bars, 16 in a whorl. Spire-whorls, the first with one nodulous carina, the second with two, the third with three, the last arising between the other two. Whorls sloping, the last three subconvex. Sutural space distinct, with a supra-sutural thread in the last six spaces, remaining nearly smooth. Tubercles close, about 18 in the penultimate, joined transversely and axially (obliquely forwards) by stout bars which lattice the surface. Aperture roundly rhomboidal, scarcely pinched behind. Outer lip slightly retrocurrent towards the suture; basal lip in contact with the erect, solid inner lip, and crossing the columella, where it closes in the short recurved notched, otherwise open canal. Base flatly convex, bounded by the nearly smooth peripheral lira, with a second smooth basal lira and a third encircling the base of the canal. The protoconch and first four spire-whorls are white, the rest light-brown.

Dim.—Length, 7·1 mm.; breadth, 2·1 mm.

Locality.—Type, Gulf St. Vincent, depth unrecorded, with 15 good and 34 moderate examples; 35 fathoms, St. Francis Island, 1 good; 40 fathoms off Beachport, 1 good and 1 poor; 55 fathoms off Cape Borda, 3 good and 5 poor; 62 fathoms off Cape Borda, 1 moderate and 3 poor; 110 fathoms off Beachport, 2 moderate; St. Francis Island beach, 5 good, 1 poor.

The species varies a great deal—

1. In colour. The first six whorls may be white, and all the rest a blackish-brown. The first three whorls (including the protoconch) may be dark-brown, and all the rest light-brown, with no white whorls. The three apical whorls may be brown, the next three white, and the rest brown, so connecting the previous shell with the type. The three apical whorls may be brown, and the seven remaining whorls quite white. The infra-sutural pearl row in the coloured portion may be dark-purple or barely tinted, the others brown, or the highest and lowest row may be purple and the central brown.

2. In shape. In most examples, though not in the type, the posterior pearl row becomes larger than the others, the pearls being greater, and consequently closer, and are somewhat axially elongate. When this is marked the whorl may be wider below the suture than above it, so as to give a more or less gradate appearance to the whorls.

Triphora gemmegens, n. sp. Pl. xxiii., figs. 7 and 8.

Shell sinistral, solid, of 12 whorls. Protoconch of three whorls, slightly deviated from the axis, swollen convex, ending abruptly, with three carinæ and obsolete axial liræ. Spire-whorls eight, subconvex, with three spiral ribs. Sutural spaces well marked, with a distinct supra-sutural thread. Base flatly convex, bordered by the supra-sutural lira, and with two broad, low, smooth spirals. Aperture roundly rhomboidal, pinched at the suture into a sinus, broken in front; inner lip erect and thick along the straight columella, outer lip ascending at the suture. Sculpture: the upper two spirals are closer than the lower, sigmoid transversely, wider than the interspaces, not gemmed (whence the name), but roughened by irregular obsolete axial liræ, which cross the interspaces, and the sutural spaces.

Dim.—Length, 7.1 mm.; breadth, 1.8 mm.

Locality.—Type in 40 fathoms off Beachport, with 2 others.

Triphora labiata, A. Adams.

Triphoris labiatus, A. Adams, Proc. Zool. Soc., London, 1851, p. 279. *Type locality*—"Sydney, under stones, low water (Mr. Strange)." Angas, Proc. Zool. Soc., London, 1867, p. 209.

Triphora labiata, A. Adams, Hedley, Proc. Linn. Soc., New South Wales, 1903 (1902), vol. xxviii., p. 617, pl. xxxiii., figs. 42, 43, 44; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1906, vol. xviii. (N.S.), p. 60, "Western Port, Victoria."

Dredged in 62 fathoms, north-west of Cape Border, 2 poor. Taken on the beach, Gulf St. Vincent, 2 good; Venus Bay, West Coast, 11 moderate; St. Francis Island, 11 poor.

The species differs from the typical *T. angasi*, Crosse and Fischer, in its short, stout pupæform figure and its mamillate apex. But a shell from the beach at Kingston and another from the beach of Gulf St. Vincent have the same shape, but a sharp, elongate protoconch like that of *T. angasi*, and might be classed as a pupæform variety of the latter, or a spiculate variety of *T. labiata*.

Triphora tasmanica, Tenison-Woods.

Triphoris tasmanica, Tenison-Woods, Proc. Roy. Soc., Tasmania, 1876 (1875), p. 28. *Type locality*—"Long Bay, Tasmania." Tryon, Man. Conch., 1887, vol. ix., p. 184, pl. xxxviii., fig. 31; Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., part 3, p. 388, fig. 7. text; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1902 (1901), p. 86, "Victoria."

Triphora, Hedley, Proc. Linn. Soc., New South Wales, 1903 (1902), part 4, p. 612, pl. xxxii., fig. 22, "100 fathoms, 16 miles east of Wollongong, New South Wales."

Dredged in 40 fathoms off Beachport, 43 perfect or very good; in 55 fathoms off Cape Borda, 23 poor; in 90 fathoms off Cape Jaffa, 4 poor; in 110 fathoms off Beachport, 1 good, 4 moderate, 1 poor; in 130 fathoms off Cape Jaffa, 4 moderate; in 150 fathoms off Beachport, 1 good; in 300 fathoms off Beachport, 1 poor.

While quite a rare shell on our beach, if present at all, it is comparatively common at 40 and 55 fathoms, where it is in good condition and quite typical in sculpture and colouring. When adult the shell may vary from 9 mm. to 5.25 mm. in length. In the perfectly-formed mouth, which is rarely seen, the posterior gutter is converted into a round orifice by the forward growth of the margin of the aperture and its application to the sutural spiral beyond the sinus, and the basal part of the anterior canal is closed by contact of the projecting spur of the basal lip with the anterior part of the inner lip. The applied parts do not appear to actually coalesce, so as to form absolute tubes, but they produce three distinct apertures.

Var. lilacina, var. nov.

This is a very pretty variety, with a delicate lilac tint on the apex and a spiral of lilac tubercles above the suture; the rest of the shell is light-brown. That it is only a variety appears from the sculpture of the apex; the adult mouth when perfect with the three apertures, and the brown spots between the pearls of the lowest spiral. It may reach 11 mm. in length, without an adult mouth. Sometimes the lilac tint is absent and replaced by white. It is referred to by Mr. Hedley in his paper quoted above.

Dredged in Gulf St. Vincent, 10 good; in 40 fathoms off Beachport, 15 quite fresh; in 55 fathoms off Cape Borda, 12 good, 5 poor. Taken on the beach, Gulf St. Vincent, 3 good; west coast of South Australia, 3 good; St. Francis Island, 12 good.

Var. nivea, var. nov.

This variety is pure-white; its protoconch and sculpture are those of *T. tasmanica*, Tenison-Woods. The protoconch is well preserved, and is slightly mamillate. The first whorl begins in the centre, and has slight axial liræ leading to a row of beads, and below this is a beaded carina; in the second whorl are two beaded carinæ. There is no evidence of any earlier protoconch having broken off. In a very large number of examples of *T. tasmanica* in various stages of growth, no individual, however immature, has been observed with a pointed protoconch.

Dredged in Gulf St. Vincent, 3 good; in 40 fathoms off Beachport, 4 good; in 110 fathoms off Beachport, 1 good. Taken on the beach in Gulf St. Vincent, 2 good; in Venus Bay, 1 good; on St. Francis Island, 1 perfect, quite fresh. They are not bleached shells.

***Triphora disjuncta*, n. sp.**

Shell solid, resembling *T. tasmanica*, Tenison-Woods, in its apex, but with rather wide sutural spaces, the three rows of tubercles equal in size, and no dark spots between the tubercles in the supra-sutural row. In these three characters it approaches *T. cinerea*, but this has a bulbous protoconch. Colour, light-brown.

Dredged in 55 fathoms off Cape Borda, 1 good; in 62 fathoms off Cape Borda, 3 good; in 110 fathoms off Beachport, 3 moderate; in 130 fathoms off Cape Borda, 5 moderate; in 300 fathoms off Beachport, 4 good.
